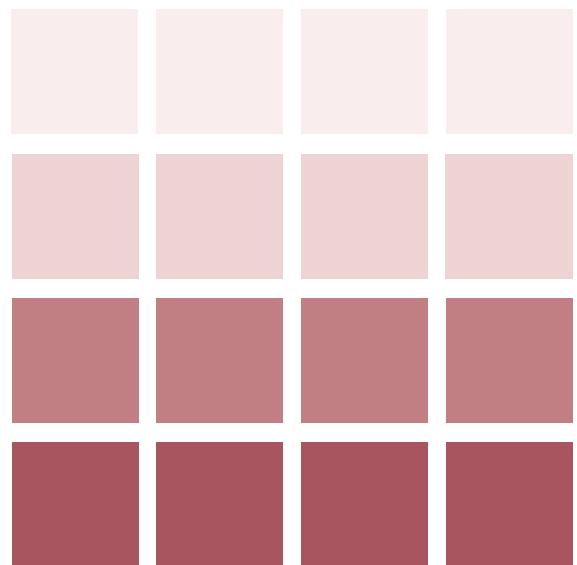


2015

2015 | A COMPARATIVE ANALYSIS

OF INVESTMENT-RELATED EXPENSES FOR MA CONTRIBUTORY
RETIREMENT SYSTEMS AND INVESTMENT RETURNS FOR 1, 5,
10 AND 31-YEAR PERIODS ENDING DECEMBER 31, 2015



Commission Members

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The Honorable Suzanne M. Bump

Auditor of the Commonwealth

Vice Chairman

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Kate Fitzpatrick

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LETTER FROM THE EXECUTIVE DIRECTOR |



The Public Employee Retirement Administration Commission (PERAC) is pleased to release: ***A Comparative Analysis of Investment-Related Expenses for Massachusetts Contributory Retirement Systems and Investment Returns for 1, 5, 10, and 31-Year Periods Ending December 31, 2015.***

This comparative analysis presents each system's annual expense ratio calculated by utilizing investment related fees (investment management, consultant and custodian) as reported by each board in its Schedule 7 of its Annual Report. Investment returns are presented gross of fees as we do not hold complete historic net of fee data for the time periods presented in this analysis. The 104 retirement systems are listed alphabetically and by category to give each board an easy way to equate its data points with similar Massachusetts contributory retirement systems. That exhibit is followed by a view of each retirement system with its actuarial valuation, funded ratio and investment return assumption. Wide-ranging details and statistics for each retirement system are contained in PERAC's Annual Report.

The investment related expenses submitted in Schedule 7 of the 2015 Annual Report(s) of Financial Condition are the basis for the majority of the expense ratio calculation. In those instances where the

schedules of fees were incomplete yet easily identified, those boards' fee totals were adjusted by PERAC to reflect the additional fees. For the most part, these fees were gathered from Annual Vendor Disclosures, Schedule K-1 filings, manager reports and cash-book submissions and are noted in detail. In assessing this material it should be kept in mind that the level of cost, in and of itself, is neither a positive nor a negative. More important is whether the performance justifies the cost.

On behalf of the Commission, I would like to thank Cheryl Johnson CFA who put this report together. If you have questions or comments, Cheryl can be reached at 617-591-8927.

Sincerely,

A handwritten signature in black ink that reads "Joseph E. Connarton".

Joseph E. Connarton
Executive Director

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*Note: All systems listed in alphabetical order

**** ADJUSTMENTS WERE MADE TO THE REPORTED SCHEDULE 7 FEES AS FOLLOWS:**

MWRA - includes "Estimated 2015"

Concord - added Comerica fees of \$19,446.55

Methuen - calculated using Schedule 5 and PRIT statement

Belmont - calculated using cashbook submissions and fund expenses

Boston - additional fees were identified through vendor disclosures, Schedule K-1 and cashbook records

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1 | INVESTMENT ANALYSIS—ALL RETIREMENT SYSTEMS

	RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
	ADAMS	\$30,954,026.42	-3.33%	4.66%	4.04%	7.69%	\$136,777.17	0.442%
	AMESBURY	\$47,993,190.69	1.12%	7.46%	5.47%	7.92%	\$242,976.74	0.506%
	ANDOVER	\$115,560,189.29	1.34%	7.59%	5.06%	8.29%	\$582,855.25	0.504%
	ARLINGTON	\$132,882,837.25	1.39%	7.54%	4.45%	8.32%	\$713,709.54	0.537%
	ATTLEBORO	\$124,098,881.72	-0.21%	7.94%	6.19%	8.87%	\$747,607.78	0.602%
	BARNSTABLE COUNTY	\$869,933,186.14	1.23%	7.62%	5.41%	7.39%	\$4,486,385.92	0.516%
**	BELMONT	\$84,872,377.90	1.32%	7.95%	7.59%	9.35%	\$600,266.19	0.707%
	BERKSHIRE COUNTY	\$194,279,912.06	1.17%	7.50%	5.90%	8.95%	\$993,538.70	0.511%
	BEVERLY	\$99,248,032.93	1.16%	7.70%	4.86%	8.50%	\$511,562.65	0.515%
	BLUE HILLS REGIONAL	\$9,649,202.54	1.16%	7.55%	5.99%	8.61%	\$50,355.98	0.522%
**	BOSTON (CITY)	\$4,050,060,177.41	-1.13%	6.40%	5.96%	8.82%	\$23,849,783.85	0.589%
	BRAINTREE	\$167,171,707.28	-1.06%	6.26%	5.81%	8.56%	\$1,002,802.44	0.600%
	BRISTOL COUNTY	\$571,451,670.40	0.40%	7.38%	6.12%	8.83%	\$4,873,466.62	0.853%
	BROCKTON	\$353,645,203.76	-1.32%	5.76%	4.69%	8.61%	\$2,254,537.60	0.638%
	BROOKLINE	\$256,161,467.52	1.43%	6.02%	5.13%	8.59%	\$1,768,032.10	0.690%
	CAMBRIDGE	\$1,074,777,433.60	-0.07%	8.04%	6.28%	9.23%	\$6,579,861.94	0.612%
	CHELSEA	\$126,277,617.71	1.22%	7.53%	5.95%	7.87%	\$642,775.82	0.509%
	CHICOPEE	\$252,439,590.44	0.18%	8.03%	6.44%	8.56%	\$2,028,299.58	0.803%
	CLINTON	\$40,050,554.43	1.52%	7.39%	5.01%	7.62%	\$229,876.32	0.574%
**	CONCORD	\$133,764,586.02	0.84%	8.17%	6.23%	8.57%	\$650,124.09	0.486%
	DANVERS	\$95,833,907.10	-1.49%	5.29%	4.97%	7.89%	\$622,313.35	0.649%
	DEDHAM	\$109,346,886.94	1.19%	7.62%	5.99%	9.47%	\$569,902.46	0.521%
	DUKES COUNTY	\$121,219,729.12	4.45%	8.91%	7.02%	7.76%	\$620,249.24	0.512%
	EASTHAMPTON	\$43,475,648.99	1.17%	7.56%	5.92%	8.19%	\$223,844.31	0.515%
	ESSEX REGIONAL	\$373,549,561.85	1.75%	7.84%	5.75%	8.70%	\$2,142,795.39	0.574%
	EVERETT	\$110,078,265.02	1.22%	7.63%	5.96%	8.37%	\$555,795.87	0.505%
	FAIRHAVEN	\$50,911,265.72	1.17%	7.59%	5.90%	9.26%	\$261,094.60	0.513%
	FALL RIVER	\$238,430,295.57	1.38%	7.56%	5.26%	8.30%	\$1,213,795.09	0.509%
	FALMOUTH	\$113,859,090.42	0.69%	8.15%	5.90%	8.94%	\$874,113.14	0.768%
	FITCHBURG	\$98,781,399.27	1.09%	7.33%	5.11%	7.54%	\$508,745.00	0.515%
	FRAMINGHAM	\$257,690,735.33	1.13%	7.56%	5.92%	9.23%	\$1,320,811.56	0.513%
	FRANKLIN REGIONAL	\$119,165,737.07	1.11%	8.49%	6.57%	8.34%	\$687,628.64	0.577%
	GARDNER	\$46,257,722.57	1.15%	7.55%	5.87%	9.35%	\$240,702.49	0.520%
	GLOUCESTER	\$86,944,546.38	1.19%	7.57%	5.46%	8.79%	\$449,053.15	0.516%
	GREATER LAWRENCE	\$14,879,090.88	0.54%	7.31%	6.61%	7.46%	\$53,195.04	0.358%

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1 | INVESTMENT ANALYSIS—ALL RETIREMENT SYSTEMS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
GREENFIELD	\$58,325,606.32	1.33%	7.74%	5.72%	8.42%	\$301,847.39	0.518%
HAMPDEN COUNTY REGIONAL	\$298,951,282.81	1.55%	7.57%	5.37%	8.54%	\$1,546,520.96	0.517%
HAMPSHIRE COUNTY	\$255,767,234.68	0.32%	6.48%	5.67%	8.19%	\$2,070,064.10	0.809%
HAVERHILL	\$171,414,687.60	-1.30%	6.93%	6.15%	9.88%	\$1,471,336.36	0.858%
HINGHAM	\$95,459,843.71	-0.49%	6.31%	5.32%	9.01%	\$415,801.05	0.436%
HOLYOKE	\$238,025,359.61	3.59%	9.23%	6.51%	9.37%	\$1,897,314.14	0.797%
HULL	\$38,424,955.20	1.32%	7.54%	5.88%	7.82%	\$196,360.72	0.511%
LAWRENCE	\$182,980,116.76	1.16%	7.52%	5.29%	7.70%	\$929,797.41	0.508%
LEOMINSTER	\$158,079,451.08	0.59%	8.25%	6.35%	8.50%	\$975,313.27	0.617%
LEXINGTON	\$136,793,701.91	0.58%	5.75%	5.18%	8.69%	\$1,119,904.09	0.819%
LOWELL	\$310,930,877.12	1.03%	7.42%	5.73%	9.04%	\$1,624,177.72	0.522%
LYNN	\$281,418,921.02	1.75%	7.94%	4.98%	7.94%	\$1,602,522.35	0.569%
MALDEN	\$222,231,262.28	-1.10%	8.29%	7.02%	9.70%	\$661,787.00	0.298%
MARBLEHEAD	\$86,967,954.27	1.17%	7.58%	5.95%	9.17%	\$457,029.49	0.526%
MARLBOROUGH	\$142,960,905.36	-0.56%	6.47%	5.63%	8.30%	\$581,201.51	0.407%
MA HOUSING FINANCE (MHFA)	\$114,430,351.35	-2.30%	5.57%	4.63%	7.29%	\$938,686.33	0.820%
MASSPORT	\$525,649,150.46	-0.42%	7.00%	5.91%	8.93%	\$2,036,188.91	0.387%
MA TEACHERS RETIREMENT SYSTEM	\$24,308,553,048.84	1.17%	7.62%	5.96%	9.41%	\$132,578,123.00	0.545%
** MWRA	\$444,812,210.16	1.07%	7.41%	6.67%	8.13%*	\$3,456,255.67	0.777%
MAYNARD	\$36,677,924.60	0.45%	8.02%	5.31%	7.86%	\$205,813.09	0.561%
MEDFORD	\$174,348,116.01	0.46%	6.20%	5.74%	8.80%	\$1,008,658.73	0.579%
MELROSE	\$72,825,404.88	0.78%	7.23%	5.29%	8.32%	\$385,202.59	0.529%
** METHUEN	\$118,573,068.48	2.27%	8.22%	5.30%	7.91%	\$605,155.32	0.510%
MIDDLESEX COUNTY	\$1,100,160,147.99	1.18%	7.49%	5.64%	8.43%	\$5,533,364.42	0.503%
MILFORD	\$73,929,796.55	1.12%	7.41%	4.43%	8.13%	\$382,604.38	0.518%
MILTON	\$108,743,208.40	1.18%	7.58%	5.82%	9.33%	\$554,273.44	0.510%
MINUTEMAN REGIONAL	\$12,686,765.88	1.15%	7.31%	5.80%	9.42%	\$64,395.26	0.508%
MONTAGUE	\$34,474,242.00	1.16%	7.56%	5.91%	9.07%	\$177,988.62	0.516%
NATICK	\$112,486,476.93	0.76%	8.23%	5.26%	8.02%	\$753,466.01	0.670%
NEEDHAM	\$134,466,530.32	1.17%	7.45%	5.85%	9.60%	\$698,387.10	0.519%
NEW BEDFORD	\$275,381,515.15	-0.46%	6.89%	5.75%	7.94%	\$2,005,664.51	0.728%
NEWBURYPORT	\$66,990,563.12	1.19%	7.49%	5.85%	8.15%	\$337,528.85	0.504%
NEWTON	\$289,300,217.60	1.19%	7.57%	5.44%	8.55%	\$1,465,371.01	0.507%
NORFOLK COUNTY	\$761,843,647.78	-0.84%	7.11%	5.62%	8.52%	\$6,289,513.77	0.826%

*Based on 30-year return

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1 | INVESTMENT ANALYSIS—ALL RETIREMENT SYSTEMS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
NORTH ADAMS	\$54,856,666.80	-0.75%	8.93%	7.43%	9.62%	\$254,924.68	0.465%
NORTH ATTLEBORO	\$96,827,582.48	2.39%	8.74%	6.37%	8.60%	\$644,417.96	0.666%
NORTHAMPTON	\$110,162,486.04	-0.10%	8.88%	7.48%	9.44%	\$431,725.59	0.392%
NORTHBRIDGE	\$29,040,194.03	1.17%	7.61%	5.95%	9.29%	\$149,719.24	0.516%
NORWOOD	\$134,769,374.90	0.60%	6.85%	6.28%	8.99%	\$927,978.21	0.689%
PEABODY	\$126,804,158.11	1.18%	7.59%	5.31%	8.56%	\$657,807.74	0.519%
PITTSFIELD	\$116,344,861.57	1.39%	7.71%	5.12%	8.12%	\$597,060.93	0.513%
PLYMOUTH	\$145,786,320.00	2.96%	8.42%	6.26%	8.77%	\$1,213,580.21	0.832%
PLYMOUTH COUNTY	\$832,579,842.33	0.54%	7.02%	5.58%	9.05%	\$6,101,191.97	0.733%
QUINCY	\$283,454,413.22	-0.79%	5.97%	4.94%	8.09%	\$1,764,742.52	0.623%
READING	\$118,032,219.36	1.24%	7.63%	5.99%	9.22%	\$609,278.68	0.516%
REVERE	\$126,759,779.60	1.09%	7.42%	5.73%	8.30%	\$645,430.75	0.509%
SALEM	\$138,519,810.86	0.82%	7.19%	4.94%	8.03%	\$700,251.09	0.506%
SAUGUS	\$81,020,640.25	1.17%	7.59%	5.95%	9.16%	\$419,544.54	0.518%
SHREWSBURY	\$98,123,117.19	0.78%	8.37%	6.27%	9.06%	\$340,344.25	0.347%
SOMERVILLE	\$239,560,106.97	1.04%	8.90%	7.07%	8.94%	\$1,216,670.54	0.508%
SOUTHBRIDGE	\$41,553,221.53	1.34%	7.27%	4.25%	7.95%	\$209,776.73	0.505%
SPRINGFIELD	\$287,358,648.46	1.54%	7.73%	5.74%	8.30%	\$1,488,221.84	0.518%
STATE	\$23,004,958,598.67	1.18%	7.62%	5.97%	9.40%	\$124,686,245.49	0.542%
STONEHAM	\$73,729,945.82	1.18%	7.57%	5.95%	8.74%	\$400,177.47	0.543%
SWAMPSCOTT	\$45,607,316.20	1.50%	8.03%	5.81%	9.03%	\$309,135.35	0.678%
TAUNTON	\$262,460,068.41	1.49%	7.97%	6.55%	9.59%	\$1,886,675.45	0.719%
WAKEFIELD	\$102,842,731.98	1.31%	7.67%	5.98%	9.61%	\$542,021.99	0.527%
WALTHAM	\$202,519,457.51	1.53%	8.23%	5.59%	8.62%	\$1,151,660.17	0.569%
WATERTOWN	\$140,310,016.43	2.42%	7.45%	5.77%	8.26%	\$1,068,126.54	0.761%
WEBSTER	\$29,947,264.28	0.74%	7.72%	6.12%	8.07%	\$253,316.38	0.846%
WELLESLEY	\$153,290,440.17	1.22%	7.63%	5.58%	9.92%	\$784,507.05	0.512%
WEST SPRINGFIELD	\$99,358,985.18	-0.54%	8.88%	6.11%	8.18%	\$368,616.59	0.371%
WESTFIELD	\$197,717,176.38	3.52%	9.27%	6.67%	8.77%	\$1,343,304.12	0.679%
WEYMOUTH	\$171,305,187.22	0.84%	7.45%	6.01%	9.81%	\$1,258,286.03	0.735%
WINCHESTER	\$102,088,126.86	-0.31%	6.29%	5.18%	8.95%	\$253,198.31	0.248%
WINTHROP	\$55,351,903.11	1.17%	7.24%	5.71%	8.58%	\$279,072.40	0.504%
WOBURN	\$124,073,355.48	-0.52%	7.71%	6.43%	9.29%	\$938,699.89	0.757%
WORCESTER	\$798,837,440.80	-0.71%	6.06%	5.30%	8.71%	\$5,091,301.43	0.637%
WORCESTER REGIONAL	\$574,145,136.60	0.92%	7.37%	5.03%	8.09%	\$3,219,237.09	0.561%

2 | INVESTMENT ANALYSIS—CITY SYSTEMS

	RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
	AMESBURY	\$47,993,190.69	1.12%	7.46%	5.47%	7.92%	\$242,976.74	0.506%
	ATTLEBORO	\$124,098,881.72	-0.21%	7.94%	6.19%	8.87%	\$747,607.78	0.602%
	BEVERLY	\$99,248,032.93	1.16%	7.70%	4.86%	8.50%	\$511,562.65	0.515%
**	BOSTON (CITY)	\$4,050,060,177.41	-1.13%	6.40%	5.96%	8.82%	\$23,849,783.85	0.589%
	BROCKTON	\$353,645,203.76	-1.32%	5.76%	4.69%	8.61%	\$2,254,537.60	0.638%
	CAMBRIDGE	\$1,074,777,433.60	-0.07%	8.04%	6.28%	9.23%	\$6,579,861.94	0.612%
	CHELSEA	\$126,277,617.71	1.22%	7.53%	5.95%	7.87%	\$642,775.82	0.509%
	CHICOPEE	\$252,439,590.44	0.18%	8.03%	6.44%	8.56%	\$2,028,299.58	0.803%
	EASTHAMPTON	\$43,475,648.99	1.17%	7.56%	5.92%	8.19%	\$223,844.31	0.515%
	EVERETT	\$110,078,265.02	1.22%	7.63%	5.96%	8.37%	\$555,795.87	0.505%
	FALL RIVER	\$238,430,295.57	1.38%	7.56%	5.26%	8.30%	\$1,213,795.09	0.509%
	FITCHBURG	\$98,781,399.27	1.09%	7.33%	5.11%	7.54%	\$508,745.00	0.515%
	GARDNER	\$46,257,722.57	1.15%	7.55%	5.87%	9.35%	\$240,702.49	0.520%
	GLOUCESTER	\$86,944,546.38	1.19%	7.57%	5.46%	8.79%	\$449,053.15	0.516%
	HAVERHILL	\$171,414,687.60	-1.30%	6.93%	6.15%	9.88%	\$1,471,336.36	0.858%
	HOLYOKE	\$238,025,359.61	3.59%	9.23%	6.51%	9.37%	\$1,897,314.14	0.797%
	LAWRENCE	\$182,980,116.76	1.16%	7.52%	5.29%	7.70%	\$929,797.41	0.508%
	LEOMINSTER	\$158,079,451.08	0.59%	8.25%	6.35%	8.50%	\$975,313.27	0.617%
	LOWELL	\$310,930,877.12	1.03%	7.42%	5.73%	9.04%	\$1,624,177.72	0.522%
	LYNN	\$281,418,921.02	1.75%	7.94%	4.98%	7.94%	\$1,602,522.35	0.569%
	MALDEN	\$222,231,262.28	-1.10%	8.29%	7.02%	9.70%	\$661,787.00	0.298%
	MARLBOROUGH	\$142,960,905.36	-0.56%	6.47%	5.63%	8.30%	\$581,201.51	0.407%

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2 | INVESTMENT ANALYSIS—CITY SYSTEMS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
MEDFORD	\$174,348,116.01	0.46%	6.20%	5.74%	8.80%	\$1,008,658.73	0.579%
MELROSE	\$72,825,404.88	0.78%	7.23%	5.29%	8.32%	\$385,202.59	0.529%
METHUEN	\$118,573,068.48	2.27%	8.22%	5.30%	7.91%	\$605,155.32	0.510%
NEW BEDFORD	\$275,381,515.15	-0.46%	6.89%	5.75%	7.94%	\$2,005,664.51	0.728%
NEWBURYPORT	\$66,990,563.12	1.19%	7.49%	5.85%	8.15%	\$337,528.85	0.504%
NEWTON	\$289,300,217.60	1.19%	7.57%	5.44%	8.55%	\$1,465,371.01	0.507%
NORTH ADAMS	\$54,856,666.80	-0.75%	8.93%	7.43%	9.62%	\$254,924.68	0.465%
NORTHAMPTON	\$110,162,486.04	-0.10%	8.88%	7.48%	9.44%	\$431,725.59	0.392%
PEABODY	\$126,804,158.11	1.18%	7.59%	5.31%	8.56%	\$657,807.74	0.519%
PITTSFIELD	\$116,344,861.57	1.39%	7.71%	5.12%	8.12%	\$597,060.93	0.513%
QUINCY	\$283,454,413.22	-0.79%	5.97%	4.94%	8.09%	\$1,764,742.52	0.623%
REVERE	\$126,759,779.60	1.09%	7.42%	5.73%	8.30%	\$645,430.75	0.509%
SALEM	\$138,519,810.86	0.82%	7.19%	4.94%	8.03%	\$700,251.09	0.506%
SOMERVILLE	\$239,560,106.97	1.04%	8.90%	7.07%	8.94%	\$1,216,670.54	0.508%
SPRINGFIELD	\$287,358,648.46	1.54%	7.73%	5.74%	8.30%	\$1,488,221.84	0.518%
TAUNTON	\$262,460,068.41	1.49%	7.97%	6.55%	9.59%	\$1,886,675.45	0.719%
WALTHAM	\$202,519,457.51	1.53%	8.23%	5.59%	8.62%	\$1,151,660.17	0.569%
WESTFIELD	\$197,717,176.38	3.52%	9.27%	6.67%	8.77%	\$1,343,304.12	0.679%
WEYMOUTH	\$171,305,187.22	0.84%	7.45%	6.01%	9.81%	\$1,258,286.03	0.735%
WINTHROP	\$55,351,903.11	1.17%	7.24%	5.71%	8.58%	\$279,072.40	0.504%
WOBURN	\$124,073,355.48	-0.52%	7.71%	6.43%	9.29%	\$938,699.89	0.757%
WORCESTER	\$798,837,440.80	-0.71%	6.06%	5.30%	8.71%	\$5,091,301.43	0.637%

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3 | INVESTMENT ANALYSIS—TOWN SYSTEMS

	RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
	ADAMS	\$30,954,026.42	-3.33%	4.66%	4.04%	7.69%	\$136,777.17	0.442%
	ANDOVER	\$115,560,189.29	1.34%	7.59%	5.06%	8.29%	\$582,855.25	0.504%
	ARLINGTON	\$132,882,837.25	1.39%	7.54%	4.45%	8.32%	\$713,709.54	0.537%
**	BELMONT	\$84,872,377.90	1.32%	7.95%	7.59%	9.35%	\$600,266.19	0.707%
	BRAINTREE	\$167,171,707.28	-1.06%	6.26%	5.81%	8.56%	\$1,002,802.44	0.600%
	BROOKLINE	\$256,161,467.52	1.43%	6.02%	5.13%	8.59%	\$1,768,032.10	0.690%
	CLINTON	\$40,050,554.43	1.52%	7.39%	5.01%	7.62%	\$229,876.32	0.574%
**	CONCORD	\$133,764,586.02	0.84%	8.17%	6.23%	8.57%	\$650,124.09	0.486%
	DANVERS	\$95,833,907.10	-1.49%	5.29%	4.97%	7.89%	\$622,313.35	0.649%
	DEDHAM	\$109,346,886.94	1.19%	7.62%	5.99%	9.47%	\$569,902.46	0.521%
	FAIRHAVEN	\$50,911,265.72	1.17%	7.59%	5.90%	9.26%	\$261,094.60	0.513%
	FALMOUTH	\$113,859,090.42	0.69%	8.15%	5.90%	8.94%	\$874,113.14	0.768%
	FRAMINGHAM	\$257,690,735.33	1.13%	7.56%	5.92%	9.23%	\$1,320,811.56	0.513%
	HINGHAM	\$95,459,843.71	-0.49%	6.31%	5.32%	9.01%	\$415,801.05	0.436%
	HULL	\$38,424,955.20	1.32%	7.54%	5.88%	7.82%	\$196,360.72	0.511%
	LEXINGTON	\$136,793,701.91	0.58%	5.75%	5.18%	8.69%	\$1,119,904.09	0.819%
	MARBLEHEAD	\$86,967,954.27	1.17%	7.58%	5.95%	9.17%	\$457,029.49	0.526%
	MAYNARD	\$36,677,924.60	0.45%	8.02%	5.31%	7.86%	\$205,813.09	0.561%
	MILFORD	\$73,929,796.55	1.12%	7.41%	4.43%	8.13%	\$382,604.38	0.518%
	MILTON	\$108,743,208.40	1.18%	7.58%	5.82%	9.33%	\$554,273.44	0.510%

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3 | INVESTMENT ANALYSIS—TOWN SYSTEMS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
MONTAGUE	\$34,474,242.00	1.16%	7.56%	5.91%	9.07%	\$177,988.62	0.516%
NATICK	\$112,486,476.93	0.76%	8.23%	5.26%	8.02%	\$753,466.01	0.670%
NEEDHAM	\$134,466,530.32	1.17%	7.45%	5.85%	9.60%	\$698,387.10	0.519%
NORTH ATTLEBORO	\$96,827,582.48	2.39%	8.74%	6.37%	8.60%	\$644,417.96	0.666%
NORTHBRIDGE	\$29,040,194.03	1.17%	7.61%	5.95%	9.29%	\$149,719.24	0.516%
NORWOOD	\$134,769,374.90	0.60%	6.85%	6.28%	8.99%	\$927,978.21	0.689%
PLYMOUTH	\$145,786,320.00	2.96%	8.42%	6.26%	8.77%	\$1,213,580.21	0.832%
READING	\$118,032,219.36	1.24%	7.63%	5.99%	9.22%	\$609,278.68	0.516%
SAUGUS	\$81,020,640.25	1.17%	7.59%	5.95%	9.16%	\$419,544.54	0.518%
SHREWSBURY	\$98,123,117.19	0.78%	8.37%	6.27%	9.06%	\$340,344.25	0.347%
SOUTHBRIDGE	\$41,553,221.53	1.34%	7.27%	4.25%	7.95%	\$209,776.73	0.505%
STONEHAM	\$73,729,945.82	1.18%	7.57%	5.95%	8.74%	\$400,177.47	0.543%
SWAMPSCOTT	\$45,607,316.20	1.50%	8.03%	5.81%	9.03%	\$309,135.35	0.678%
WAKEFIELD	\$102,842,731.98	1.31%	7.67%	5.98%	9.61%	\$542,021.99	0.527%
WATERTOWN	\$140,310,016.43	2.42%	7.45%	5.77%	8.26%	\$1,068,126.54	0.761%
WEBSTER	\$29,947,264.28	0.74%	7.72%	6.12%	8.07%	\$253,316.38	0.846%
WELLESLEY	\$153,290,440.17	1.22%	7.63%	5.58%	9.92%	\$784,507.05	0.512%
WEST SPRINGFIELD	\$99,358,985.18	-0.54%	8.88%	6.11%	8.18%	\$368,616.59	0.371%
WINCHESTER	\$102,088,126.86	-0.31%	6.29%	5.18%	8.95%	\$253,198.31	0.248%

4 | INVESTMENT ANALYSIS—STATE/AUTHORITIES/COUNTY/REGIONAL/DISTRICT SYSTEMS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	5-Year RETURN	10-Year RETURN	31-Year RETURN	INVESTMENT RELATED FEES	EXPENSE RATIO
STATEWIDE/COMMONWEALTH SYSTEMS							
MA TEACHERS RETIREMENT SYSTEM	\$24,308,553,048.84	1.17%	7.62%	5.96%	9.41%	\$132,578,123.00	0.545%
STATE	\$23,004,958,598.67	1.18%	7.62%	5.97%	9.40%	\$124,686,245.49	0.542%
AUTHORITIES							
MA HOUSING FINANCE (MHFA)	\$114,430,351.35	-2.30%	5.57%	4.63%	7.29%	\$938,686.33	0.820%
MASSPORT	\$525,649,150.46	-0.42%	7.00%	5.91%	8.93%	\$2,036,188.91	0.387%
** MWRA	\$444,812,210.16	1.07%	7.41%	6.67%	8.13%*	\$3,456,255.67	0.777%
COUNTY/REGIONAL SYSTEMS							
BARNSTABLE COUNTY	\$869,933,186.14	1.23%	7.62%	5.41%	7.39%	\$4,486,385.92	0.516%
BERKSHIRE COUNTY	\$194,279,912.06	1.17%	7.50%	5.90%	8.95%	\$993,538.70	0.511%
BRISTOL COUNTY	\$571,451,670.40	0.40%	7.38%	6.12%	8.83%	\$4,873,466.62	0.853%
DUKES COUNTY	\$121,219,729.12	4.45%	8.91%	7.02%	7.76%	\$620,249.24	0.512%
ESSEX REGIONAL	\$373,549,561.85	1.75%	7.84%	5.75%	8.70%	\$2,142,795.39	0.574%
FRANKLIN REGIONAL	\$119,165,737.07	1.11%	8.49%	6.57%	8.34%	\$687,628.64	0.577%
HAMPDEN COUNTY REGIONAL	\$298,951,282.81	1.55%	7.57%	5.37%	8.54%	\$1,546,520.96	0.517%
HAMPSHIRE COUNTY	\$255,767,234.68	0.32%	6.48%	5.67%	8.19%	\$2,070,064.10	0.809%
MIDDLESEX COUNTY	\$1,100,160,147.99	1.18%	7.49%	5.64%	8.34%	\$5,533,364.42	0.503%
NORFOLK COUNTY	\$761,843,647.78	-0.84%	7.11%	5.62%	8.52%	\$6,289,513.77	0.826%
PLYMOUTH COUNTY	\$832,579,842.33	0.54%	7.02%	5.58%	9.05%	\$6,101,191.97	0.733%
WORCESTER REGIONAL	\$574,145,136.60	0.92%	7.37%	5.03%	8.09%	\$3,219,237.09	0.561%
DISTRICT SYSTEMS							
BLUE HILLS REGIONAL	\$9,649,202.54	1.16%	7.55%	5.99%	8.61%	\$50,355.98	0.522%
GREATER LAWRENCE	\$14,879,090.88	0.54%	7.31%	6.61%	7.46%	\$53,195.04	0.358%
MINUTEMAN REGIONAL	\$12,686,765.88	1.15%	7.31%	5.80%	9.42%	\$64,395.26	0.508%

*Based on 30-year return

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5 | INVESTMENT ANALYSIS—FUNDED RATIOS

	RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	FUNDED RATIO	DATE	INVESTMENT RETURN ASSUMPTION	INVESTMENT RELATED FEES	EXPENSE RATIO
	ADAMS	\$30,954,026.42	-3.33%	76.7%	1/1/14	7.000%	\$136,777.17	0.442%
	AMESBURY	\$47,993,190.69	1.12%	53.6%	1/1/14	8.250%	\$242,976.74	0.506%
	ANDOVER	\$115,560,189.29	1.34%	47.9%	1/1/16	7.250%	\$582,855.25	0.504%
	ARLINGTON	\$132,882,837.25	1.39%	50.9%	1/1/15	7.500%	\$713,709.54	0.537%
	ATTLEBORO	\$124,098,881.72	-0.21%	65.4%	1/1/14	8.000%	\$747,607.78	0.602%
	BARNSTABLE COUNTY	\$869,933,186.14	1.23%	58.2%	1/1/16	7.625%	\$4,486,385.92	0.516%
**	BELMONT	\$84,872,377.90	1.32%	51.2%	1/1/14	7.750%	\$600,266.19	0.707%
	BERKSHIRE COUNTY	\$194,279,912.06	1.17%	82.2%	1/1/15	7.600%	\$993,538.70	0.511%
	BEVERLY	\$99,248,032.93	1.16%	53.1%	1/1/16	7.500%	\$511,562.65	0.515%
	BLUE HILLS REGIONAL	\$9,649,202.54	1.16%	71.0%	1/1/14	7.750%	\$50,355.98	0.522%
**	BOSTON (CITY)	\$4,050,060,177.41	-1.13%	70.2%	1/1/14	7.750%	\$23,849,783.85	0.589%
	BRAINTREE	\$167,171,707.28	-1.06%	65.8%	1/1/14	7.750%	\$1,002,802.44	0.600%
	BRISTOL COUNTY	\$571,451,670.40	0.40%	61.4%	1/1/14	8.000%	\$4,873,466.62	0.853%
	BROCKTON	\$353,645,203.76	-1.32%	67.2%	1/1/14	8.000%	\$2,254,537.60	0.638%
	BROOKLINE	\$256,161,467.52	1.43%	55.4%	1/1/16	7.400%	\$1,768,032.10	0.690%
	CAMBRIDGE	\$1,074,777,433.60	-0.07%	81.1%	1/1/16	7.750%	\$6,579,861.94	0.612%
	CHELSEA	\$126,277,617.71	1.22%	58.9%	1/1/15	7.500%	\$642,775.82	0.509%
	CHICOPEE	\$252,439,590.44	0.18%	72.8%	1/1/15	8.000%	\$2,028,299.58	0.803%
	CLINTON	\$40,050,554.43	1.52%	63.2%	1/1/15	7.600%	\$229,876.32	0.574%
**	CONCORD	\$133,764,586.02	0.84%	82.5%	1/1/16	7.000%	\$650,124.09	0.486%
	DANVERS	\$95,833,907.10	-1.49%	55.5%	1/1/14	8.000%	\$622,313.35	0.649%
	DEDHAM	\$109,346,886.94	1.19%	85.8%	1/1/16	7.750%	\$569,902.46	0.521%
	DUKES COUNTY	\$121,219,729.12	4.45%	68.6%	1/1/14	7.750%	\$620,249.24	0.512%
	EASTHAMPTON	\$43,475,648.99	1.17%	65.5%	1/1/16	7.500%	\$223,844.31	0.515%
	ESSEX REGIONAL	\$373,549,561.85	1.75%	48.4%	1/1/14	8.000%	\$2,142,795.39	0.574%
	EVERETT	\$110,078,265.02	1.22%	42.8%	1/1/14	7.750%	\$555,795.87	0.505%
	FAIRHAVEN	\$50,911,265.72	1.17%	73.6%	1/1/14	7.750%	\$261,094.60	0.513%
	FALL RIVER	\$238,430,295.57	1.38%	41.3%	1/1/15	7.750%	\$1,213,795.09	0.509%
	FALMOUTH	\$113,859,090.42	0.69%	59.8%	1/1/14	7.750%	\$874,113.14	0.768%
	FITCHBURG	\$98,781,399.27	1.09%	42.5%	1/1/14	7.950%	\$508,745.00	0.515%
	FRAMINGHAM	\$257,690,735.33	1.13%	67.4%	1/1/14	7.750%	\$1,320,811.56	0.513%
	FRANKLIN REGIONAL	\$119,165,737.07	1.11%	69.8%	1/1/14	7.750%	\$687,628.64	0.577%
	GARDNER	\$46,257,722.57	1.15%	57.0%	1/1/15	7.875%	\$240,702.49	0.520%
	GLOUCESTER	\$86,944,546.38	1.19%	45.3%	1/1/16	7.500%	\$449,053.15	0.516%
	GREATER LAWRENCE	\$14,879,090.88	0.54%	85.0%	1/1/15	7.000%	\$53,195.04	0.358%

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5 | INVESTMENT ANALYSIS—FUNDED RATIOS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	FUNDED RATIO	DATE	INVESTMENT RETURN ASSUMPTION	INVESTMENT RELATED FEES	EXPENSE RATIO
GREENFIELD	\$58,325,606.32	1.33%	56.2%	1/1/15	7.600%	\$301,847.39	0.518%
HAMPDEN COUNTY REGIONAL	\$298,951,282.81	1.55%	47.5%	1/1/16	7.750%	\$1,546,520.96	0.517%
HAMPSHIRE COUNTY	\$255,767,234.68	0.32%	58.5%	1/1/16	7.500%	\$2,070,064.10	0.809%
HAVERHILL	\$171,414,687.60	-1.30%	52.0%	1/1/16	7.500%	\$1,471,336.36	0.858%
HINGHAM	\$95,459,843.71	-0.49%	68.1%	1/1/14	7.750%	\$415,801.05	0.436%
HOLYOKE	\$238,025,359.61	3.59%	58.1%	1/1/14	7.750%	\$1,897,314.14	0.797%
HULL	\$38,424,955.20	1.32%	54.0%	1/1/14	7.750%	\$196,360.72	0.511%
LAWRENCE	\$182,980,116.76	1.16%	44.6%	1/1/14	7.750%	\$929,797.41	0.508%
LEOMINSTER	\$158,079,451.08	0.59%	83.3%	1/1/15	5.500%	\$975,313.27	0.617%
LEXINGTON	\$136,793,701.91	0.58%	82.3%	1/1/14	7.750%	\$1,119,904.09	0.819%
LOWELL	\$310,930,877.12	1.03%	55.0%	1/1/15	8.000%	\$1,624,177.72	0.522%
LYNN	\$281,418,921.02	1.75%	45.5%	1/1/15	7.600%	\$1,602,522.35	0.569%
MALDEN	\$222,231,262.28	-1.10%	70.3%	1/1/14	7.750%	\$661,787.00	0.298%
MARBLEHEAD	\$86,967,954.27	1.17%	65.8%	1/1/16	7.500%	\$457,029.49	0.526%
MARLBOROUGH	\$142,960,905.36	-0.56%	70.7%	1/1/15	7.500%	\$581,201.51	0.407%
MA HOUSING FINANCE (MHFA)	\$114,430,351.35	-2.30%	78.8%	1/1/15	7.750%	\$938,686.33	0.820%
MASSPORT	\$525,649,150.46	-0.42%	91.0%	1/1/15	7.500%	\$2,036,188.91	0.387%
MA TEACHERS RETIREMENT SYSTEM	\$24,308,553,048.84	1.17%	52.8%	1/1/16	7.500%	\$132,578,123.00	0.545%
MWRA	\$444,812,210.16	1.07%	98.3%	1/1/15	7.750%	\$3,456,255.67	0.777%
MAYNARD	\$36,677,924.60	0.45%	69.1%	1/1/15	7.500%	\$205,813.09	0.561%
MEDFORD	\$174,348,116.01	0.46%	61.0%	1/1/14	7.500%	\$1,008,658.73	0.579%
MELROSE	\$72,825,404.88	0.78%	54.6%	1/1/15	7.875%	\$385,202.59	0.529%
METHUEN	\$118,573,068.48	2.27%	46.6%	1/1/14	7.750%	\$605,155.32	0.510%
MIDDLESEX COUNTY	\$1,100,160,147.99	1.18%	44.0%	1/1/14	7.875%	\$5,533,364.42	0.503%
MILFORD	\$73,929,796.55	1.12%	57.8%	1/1/15	7.600%	\$382,604.38	0.518%
MILTON	\$108,743,208.40	1.18%	76.6%	1/1/15	7.750%	\$554,273.44	0.510%
MINUTEMAN REGIONAL	\$12,686,765.88	1.15%	86.7%	1/1/15	7.500%	\$64,395.26	0.508%
MONTAGUE	\$34,474,242.00	1.16%	76.7%	1/1/16	7.500%	\$177,988.62	0.516%
NATICK	\$112,486,476.93	0.76%	60.8%	1/1/15	7.500%	\$753,466.01	0.670%
NEEDHAM	\$134,466,530.32	1.17%	68.6%	1/1/15	7.750%	\$698,387.10	0.519%
NEW BEDFORD	\$275,381,515.15	-0.46%	46.3%	1/1/16	7.750%	\$2,005,664.51	0.728%
NEWBURYPORT	\$66,990,563.12	1.19%	60.8%	1/1/14	7.750%	\$337,528.85	0.504%
NEWTON	\$289,300,217.60	1.19%	51.5%	1/1/16	7.650%	\$1,465,371.01	0.507%
NORFOLK COUNTY	\$761,843,647.78	-0.84%	62.1%	1/1/16	8.000%	\$6,289,513.77	0.826%

*Based on 30-year return

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5 | INVESTMENT ANALYSIS—FUNDED RATIOS

RETIREMENT SYSTEM	MARKET VALUE	2015 RETURN	FUNDED RATIO	DATE	INVESTMENT RETURN ASSUMPTION	INVESTMENT RELATED FEES	EXPENSE RATIO
NORTH ADAMS	\$54,856,666.80	-0.75%	71.1%	1/1/15	7.500%	\$254,924.68	0.465%
NORTH ATTLEBORO	\$96,827,582.48	2.39%	79.1%	1/1/15	8.000%	\$644,417.96	0.666%
NORTHAMPTON	\$110,162,486.04	-0.10%	63.0%	1/1/14	7.750%	\$431,725.59	0.392%
NORTHBRIDGE	\$29,040,194.03	1.17%	64.6%	1/1/14	8.000%	\$149,719.24	0.516%
NORWOOD	\$134,769,374.90	0.60%	77.0%	1/1/14	8.250%	\$927,978.21	0.689%
PEABODY	\$126,804,158.11	1.18%	49.6%	1/1/14	8.250%	\$657,807.74	0.519%
PITTSFIELD	\$116,344,861.57	1.39%	46.2%	1/1/15	7.750%	\$597,060.93	0.513%
PLYMOUTH	\$145,786,320.00	2.96%	49.2%	1/1/15	7.500%	\$1,213,580.21	0.832%
PLYMOUTH COUNTY	\$832,579,842.33	0.54%	58.3%	1/1/15	8.000%	\$6,101,191.97	0.733%
QUINCY	\$283,454,413.22	-0.79%	46.7%	1/1/14	8.000%	\$1,764,742.52	0.623%
READING	\$118,032,219.36	1.24%	73.0%	1/1/15	7.650%	\$609,278.68	0.516%
REVERE	\$126,759,779.60	1.09%	53.2%	1/1/15	7.600%	\$645,430.75	0.509%
SALEM	\$138,519,810.86	0.82%	50.7%	1/1/14	7.750%	\$700,251.09	0.506%
SAUGUS	\$81,020,640.25	1.17%	69.5%	1/1/15	7.600%	\$419,544.54	0.518%
SHREWSBURY	\$98,123,117.19	0.78%	72.1%	1/1/14	8.000%	\$340,344.25	0.347%
SOMERVILLE	\$239,560,106.97	1.04%	62.5%	1/1/15	8.250%	\$1,216,670.54	0.508%
SOUTHBRIDGE	\$41,553,221.53	1.34%	50.8%	1/1/14	7.750%	\$209,776.73	0.505%
SPRINGFIELD	\$287,358,648.46	1.54%	26.2%	1/1/16	7.650%	\$1,488,221.84	0.518%
STATE	\$23,004,958,598.67	1.18%	63.5%	1/1/16	7.500%	\$124,686,245.49	0.542%
STONEHAM	\$73,729,945.82	1.18%	64.5%	1/1/14	7.875%	\$400,177.47	0.543%
SWAMPSCOTT	\$45,607,316.20	1.50%	48.2%	1/1/15	8.000%	\$309,135.35	0.678%
TAUNTON	\$262,460,068.41	1.49%	65.6%	1/1/14	8.000%	\$1,886,675.45	0.719%
WAKEFIELD	\$102,842,731.98	1.31%	63.5%	1/1/14	7.750%	\$542,021.99	0.527%
WALTHAM	\$202,519,457.51	1.53%	55.9%	1/1/15	8.250%	\$1,151,660.17	0.569%
WATERTOWN	\$140,310,016.43	2.42%	73.7%	1/1/15	8.000%	\$1,068,126.54	0.761%
WEBSTER	\$29,947,264.28	0.74%	50.7%	1/1/14	7.750%	\$253,316.38	0.846%
WELLESLEY	\$153,290,440.17	1.22%	73.6%	1/1/15	6.750%	\$784,507.05	0.512%
WEST SPRINGFIELD	\$99,358,985.18	-0.54%	55.2%	1/1/14	7.875%	\$368,616.59	0.371%
WESTFIELD	\$197,717,176.38	3.52%	68.4%	1/1/15	7.750%	\$1,343,304.12	0.679%
WEYMOUTH	\$171,305,187.22	0.84%	64.6%	1/1/14	7.875%	\$1,258,286.03	0.735%
WINCHESTER	\$102,088,126.86	-0.31%	78.3%	1/1/15	7.250%	\$253,198.31	0.248%
WINTHROP	\$55,351,903.11	1.17%	75.9%	1/1/15	7.500%	\$279,072.40	0.504%
WOBURN	\$124,073,355.48	-0.52%	64.6%	1/1/14	8.000%	\$938,699.89	0.757%
WORCESTER	\$798,837,440.80	-0.71%	66.0%	1/1/16	7.500%	\$5,091,301.43	0.637%
WORCESTER REGIONAL	\$574,145,136.60	0.92%	44.9%	1/1/14	8.000%	\$3,219,237.09	0.561%



SEC

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EDUCATION and ADVOCACY

INVESTOR BULLETIN

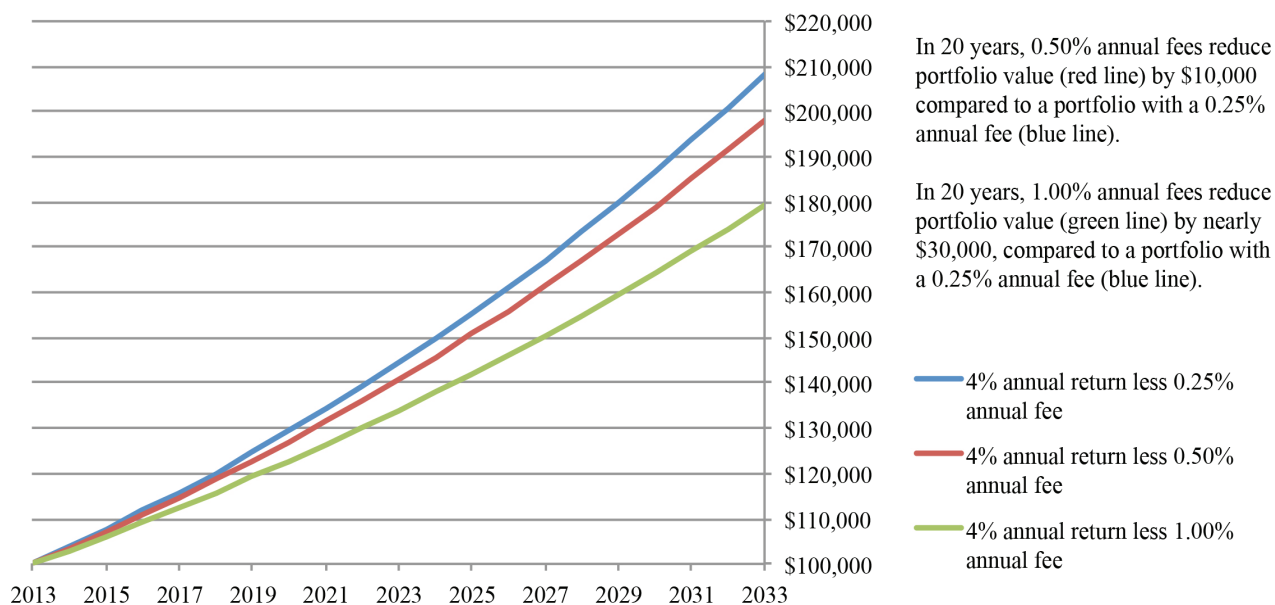
How Fees and Expenses Affect Your Investment Portfolio

The SEC's Office of Investor Education and Advocacy is issuing this bulletin to educate investors about how fees can impact the value of an investment portfolio.

As with anything you buy, there are fees and costs associated with investment products and services.

These fees may seem small, but over time they can have a major impact on your investment portfolio. The following chart shows an investment portfolio with a 4% annual return over 20 years when the investment either has an ongoing fee of 0.25%, 0.50% or 1%. Notice how the fees affect the investment portfolio over 20 years.

Portfolio Value From Investing \$100,000 Over 20 Years



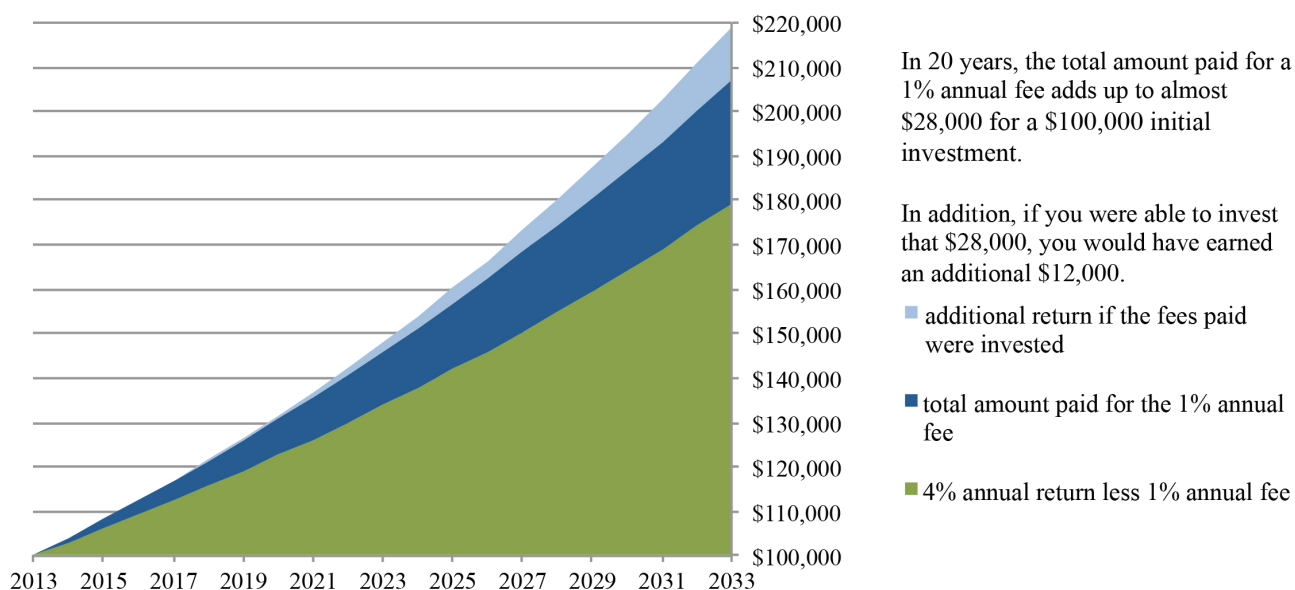
How do ongoing fees affect your investment portfolio?

Ongoing fees can also reduce the value of your investment portfolio. This is particularly true over time, because not only is your investment balance reduced by the fee, but you also lose any return you would have earned *on* that fee. ***Over time, even ongoing fees that are small can have a big impact on your investment portfolio.*** The chart above illustrates the effect of different ongoing fees on a

\$100,000 investment portfolio with a 4% annual return over 20 years.

The chart below illustrates the impact of a 1% ongoing fee on a \$100,000 investment portfolio that grows 4% annually over 20 years. As the investment portfolio grows over time, so does the total amount of fees you pay. Because of the fees you pay, you have a smaller amount invested that is earning a return.

Illustration of Ongoing Fees Over 20 Years



7 | INVESTMENT VENDORS BY RETIREMENT BOARD

RETIREMENT BOARD	INVESTMENT VENDORS		
ADAMS ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> Capital Research and Management 	<ul style="list-style-type: none"> Granite Investment Advisors 	
AMESBURY	<ul style="list-style-type: none"> PRIT 		
ANDOVER	<ul style="list-style-type: none"> PRIT 		
ARLINGTON ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> Wilshire Associates Inc. 	
ATTLEBORO ► Custodian: People's United Bank ► Consultant: Dahab Associates Inc.	<ul style="list-style-type: none"> Boston Advisors, LLC Daruma Capital Management, LLC Fidelity Institutional Asset Management Frontier Capital Management Co., LLC Hancock Natural Resource Group, Inc. 	<ul style="list-style-type: none"> Herndon Capital Management, LLC Invesco Core Real Estate USA, LP Invesco National Trust Company Orleans Capital Management Corp. 	<ul style="list-style-type: none"> PRIT Regions Timberland State Street Global Advisors Wells Capital Management Inc.
BARNSTABLE COUNTY	<ul style="list-style-type: none"> Intercontinental Capital Management, LLC 	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> UBS Realty Investors, LLC
BELMONT ► Custodian: State Street Bank & Trust ► Consultant: New England Pension Consultants	<ul style="list-style-type: none"> AEW Capital Management, LP Atlanta Capital Harbourvest Partners, LLC 	<ul style="list-style-type: none"> Loomis Sayles & Company Pacific Investment Management Company, LLC PRIT 	<ul style="list-style-type: none"> RhumbLine Advisers Rothschild Asset Management Inc. Scout Capital Management, LLC
BERKSHIRE COUNTY	<ul style="list-style-type: none"> PRIT 		
BEVERLY	<ul style="list-style-type: none"> PRIT 		
BLUE HILLS REGIONAL	<ul style="list-style-type: none"> PRIT 		
BOSTON (CITY) ► Custodian: State Street Bank & Trust ► Consultant: New England Pension Consultants	<ul style="list-style-type: none"> 57 Stars, LLC AEW Capital Management, LP Alcentra NY, LLC Alladin Credit Partners, LLC Angelo, Gordon & Co., LP Ardlight Capital Partners, LLC Aristotle Capital Management, LLC Arsenal Real Estate Funds, LLC Ascent Venture Partners Audax Group Bernzott Capital Advisors BlackRock Advisors, LLC Blue Point Capital Partners, LLC Boston Company Asset Management, LLC Boston Millennia Partners Brookfield Asset Management CCMP Capital Advisors, LLC Centersquare Investment Management Holdings, Inc. Columbia Management Investment Advisors, LLC Commonwealth Capital Ventures Crescent Capital Group, LP DDJ Capital Management D.E. Shaw Investment Management, LLC DRC Capital, LLP Dune Capital Management, LP Energy Spectrum Partners 	<ul style="list-style-type: none"> EnTrust Partners, LLC Evercore Advisors, LLC Federal Street Partners, LLCFisher Investments Fisher Investments GAM USA, Inc. Goldentree Asset Management, LP Grosvenor Capital Management, LP Hearthstone Inc. Income Research + Management Intech Invesco Core Real Estate USA, LP J.F. Lehman & Company, Inc. J.P. Morgan Investment Management, Inc. J.W. Childs Associates, LP LaSalle Investment Management, Inc. Lazard Asset Management, LLC Lexington Partners, LP Loomis Sayles & Company Mesirow Advanced Strategies, Inc. Mesirow Financial Investment Management, Inc. MPM Capital, LP NGP Energy Capital Management, LLC Oaktree Capital Management, LP PanAgora Asset Management, Inc. Pearlmark Investment Advisors, LLC Perella Weinberg Partners Capital Management, LP 	<ul style="list-style-type: none"> Pernal Asset Management, Inc. Polunin Capital Partners Prudential Capital Partners RhumbLine Advisers Richmond Capital Management, Inc. Sanderling Ventures SCP Private Equity Partners Siguler Guff Advisers, LLC SL Capital Partners State Street Global Advisors Sterling Venture Partners, LLC TA Realty TH Lee Putnam Ventures Thomas H. Lee Partners, LP Thomas Weisel Global Growth Partners, LLC Tristan Capital Partners Vanguard Venture Partners, LLC Vontobel Asset Management, Inc. W Capital Partners Wells Capital Management, Inc. Western Technology Westfield Capital Management Company, LP Westport Capital Partners, LLC Z Capital Partners, LLC Zevenbergen Capital Investments, LLC

RETIREMENT BOARD	INVESTMENT VENDORS		
BOSTON TEACHERS	<ul style="list-style-type: none"> • PRIT 		
BRAINTREE ▶ Custodian: State Street Bank & Trust ▶ Consultant: New England Pension Consultants	<ul style="list-style-type: none"> • Acadian Asset Management, LLC • Lexington Partners, LP • Loomis Sayles & Company 	<ul style="list-style-type: none"> • Massachusetts Financial Services Company • Pictet Asset Management 	<ul style="list-style-type: none"> • PRIT • RhumbLine Advisers
BRISTOL COUNTY ▶ Custodian: State Street Bank & Trust ▶ Consultant: Segal Rogerscasey	<ul style="list-style-type: none"> • Arrowstreet Capital, LP • BlackRock Investment Management, LLC • Brookfield Timberlands Management, LP • CB Richard Ellis Group, Inc. • Colchester Global Investors • Columbia Management Investment Advisers, LLC • DN Partners • Dupont Capital Management • Earnest Partners, LLC • Hancock Timber Resource Group, Inc. • Hunt Investment Management, LLC 	<ul style="list-style-type: none"> • Income Research & Management • Intech • Lazard Asset Management, LLC • LSV Asset Management • Lyrical Asset Management, LP • Massachusetts Financial Services Company • Mesirow Financial Private Equity Advisors, Inc. • New Boston Fund, Inc. • Pacific Investment Management Company, LLC • Polaris Capital Management, LLC 	<ul style="list-style-type: none"> • PRIT • RBC Global Asset Management (U.S.), Inc. • Rice Hall James & Associates, LLC • RREEF Management, LLC • SEI Trust Company • State Street Global Advisors • TA Realty • Timberland Investment Resources, LLC • Trust and Fiduciary Management Services, Inc. • WL Ross & Co., LLC
BROCKTON ▶ Custodian: SEI Private Trust Company	<ul style="list-style-type: none"> • Arsenal Real Estate Partners • Ascent Venture Partners • Boston Capital Ventures • Charlesbank Capital Partners, LLC • Flag Capital Management, LLC • HealthPoint, LLC 	<ul style="list-style-type: none"> • Intercontinental Capital Management, LLC • Invesco Private Capital, Inc. • Landmark Partners, LLC • Levine Leichtman Capital Partners, Inc. • Mesirow Financial Investment Management, Inc. • New Boston Fund, Inc. 	<ul style="list-style-type: none"> • New England Capital Partners • Oppenheimer Alternative Investment Management • SEI Investments Management Corp. • Siguler Guff Advisers, LLC • TA Realty
BROOKLINE ▶ Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • AEW Capital Management, LP • Hancock Timber Resource Group, Inc. • HarbourVest Partners, LLC 	<ul style="list-style-type: none"> • Invesco Private Capital, Inc. • Lexington Partners, LP • PRIT 	<ul style="list-style-type: none"> • Russell Investment Group • Sustainable Woodlands Partners, LLC
CAMBRIDGE ▶ Custodian: State Street Bank & Trust ▶ Consultant: Segal Rogerscasey	<ul style="list-style-type: none"> • AEW Capital Management, LP • Ascent Venture Partners • BlackRock Investment Management, LLC • Brandywine Global Investment Management, LLC • Columbia Management Investment Advisers, LLC • Fidelity Institutional Asset Management • Fred Alger Management, Inc. • Hamilton Lane • Hancock Timber Resource Group, Inc. 	<ul style="list-style-type: none"> • Income Research & Management • Invesco Core Real Estate USA, LP • Landmark Partners, LLC • Lazard Asset Management, LLC • Lexington Partners, LP • MacKay Shields, LLC • MFS Institutional Advisers, Inc. • Penn Square Global Real Estate Group, LLC 	<ul style="list-style-type: none"> • Polaris Capital Management, LLC • PRIT • RBC Global Asset Management (U.S.), Inc. • RhumbLine Advisers • Rockwood Capital, LLC • State Street Global Advisors • UBS Realty Advisers, LLC • WEDGE Capital Management, LLP
CHELSEA	<ul style="list-style-type: none"> • PRIT 		
CHICOPEE ▶ Custodian: SEI Private Trust Company	<ul style="list-style-type: none"> • PRIT 	<ul style="list-style-type: none"> • SEI Investments Management Corp. 	
CLINTON ▶ Consultant: Trust Advisory Group, Ltd.	<ul style="list-style-type: none"> • PRIT 		
CONCORD ▶ Custodian: Comerica Securities	<ul style="list-style-type: none"> • Columbia Threadneedle Investments 	<ul style="list-style-type: none"> • PRIT 	<ul style="list-style-type: none"> • Russell Investment Group
DANVERS ▶ Custodian: State Street Bank & Trust ▶ Consultant: Graystone Consulting	<ul style="list-style-type: none"> • Dalton, Greiner, Hartman, Maher & Co., LLC • Equus Capital Partners, Ltd. • Fidelity Investments Money Management, Inc. • Gerber-Taylor Management Company 	<ul style="list-style-type: none"> • Longfellow Investment Management Co., LLC • Mount Lucas Management, LP • PRIT • RhumbLine Advisers 	<ul style="list-style-type: none"> • Shafer Cullen • Shenkman Capital Management, Inc. • TA Realty

RETIREMENT BOARD	INVESTMENT VENDORS		
DEDHAM	<ul style="list-style-type: none"> PRIT 		
DUKES COUNTY ▶ Custodian: State Street Bank & Trust ▶ Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> Atlanta Capital Garcia Hamilton & Associates LP 	<ul style="list-style-type: none"> Polen Capital Management, LLC PRIT 	<ul style="list-style-type: none"> Vanguard
EASTHAMPTON	<ul style="list-style-type: none"> PRIT 		
ESSEX COUNTY ▶ Custodian: State Street Bank & Trust ▶ Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> Ascent Venture Partners BlackRock Investment Management, LLC Boston Millennia Partners Intercontinental Real Estate Corp. 	<ul style="list-style-type: none"> Levine Leichtman Capital Partners, Inc.. MassVentures PRIT 	<ul style="list-style-type: none"> Principal Real Estate Investors, LLC Sentinel Real Estate Corporation TA Realty
EVERETT	<ul style="list-style-type: none"> PRIT 		
FAIRHAVEN	<ul style="list-style-type: none"> PRIT 		
FALL RIVER	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> SL Capital Partners, LLP 	
FALMOUTH ▶ Custodian: State Street Bank & Trust ▶ Consultant: Wainwright Investment Counsel, LLC	<ul style="list-style-type: none"> Baring Asset Management (Asia) Limited Denver Investments Dimensional Fund Advisors, LP Earnest Partners, LLC HGK Asset Management, Inc. Intercontinental Real Estate Corp. 	<ul style="list-style-type: none"> Invesco Private Capital, Inc. Lexington Partners, LP LMCG Investments, LLC Mesirow Financial Private Equity Advisors, Inc. Metropolitan Real Estate Equity Management, LLC PRIT 	<ul style="list-style-type: none"> Principal Real Estate Investors, LLC RhumbLine Advisers SEI Trust Company Seizert Capital Partners, LLC Siguler Guff Advisers, LLC State Street Global Advisors
FITCHBURG	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> TA Realty 	
FRAMINGHAM	<ul style="list-style-type: none"> PRIT 		
FRANKLIN COUNTY ▶ Custodian: Comerica Bank ▶ Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> Daruma Capital Management, LLC Income Research & Management O'Shaughnessy Asset Management, LLC 	<ul style="list-style-type: none"> Polen Capital Management, LLC PRIT 	<ul style="list-style-type: none"> Seizert Capital Partners, LLC Systematic Financial Management, LP
GARDNER	<ul style="list-style-type: none"> PRIT 		
GLOUCESTER	<ul style="list-style-type: none"> PRIT 		
GREATER LAWRENCE ▶ Custodian: BNY Mellon Asset Servicing	<ul style="list-style-type: none"> Seaward Management 		
GREENFIELD	<ul style="list-style-type: none"> PRIT 		
HAMPDEN COUNTY REGIONAL ▶ Consultant: Segal Rogerscasey	<ul style="list-style-type: none"> GCM Customized Fund Investment Group Long Wharf Real Estate Partners, LLC 	<ul style="list-style-type: none"> New Boston Fund, Inc. 	<ul style="list-style-type: none"> PRIT
HAMPSHIRE COUNTY ▶ Consultant: New England Pension Consultants	<ul style="list-style-type: none"> Ascent Venture Partners Babson Capital Management, LLC Colchester Global Investors Grantham, Mayo, Van Otterloo & Company, Inc. Intercontinental Real Estate Corporation Lexington Partners, LP 	<ul style="list-style-type: none"> Massachusetts Financial Services Company Mellon Capital Management Corporation Pacific Investment Management Company, LLC Perella Weinberg Partners Capital Management, LP Permal Capital Management, LLC Polaris Capital Management, LLC 	<ul style="list-style-type: none"> Portfolio Advisors, LLC PRIT RBC Global Asset Management (U.S.) Inc. RhumbLine Advisers Shenkman Capital Management, Inc.

RETIREMENT BOARD		INVESTMENT VENDORS	
HAVERTHILL ► Custodian: State Street Bank & Trust ► Consultant: Wainwright Investment Counsel, LLC	<ul style="list-style-type: none"> • DDJ Capital Management, LLC • Fisher Investments • Global Forest Partners, LP • Globespan Capital Management, Inc. • GrandBanks Capital • Income Research + Management • Intercontinental Real Estate Corporation 	<ul style="list-style-type: none"> • Massachusetts Financial Services Company • Mesirow Financial Institutional Real Estate • Molpus Woodlands Group, LLC • Northwinds Marketing • PRIT • Putnam Investment Management, LLC 	<ul style="list-style-type: none"> • RhumbLine Advisers • Stafford Private Equity, Inc. • Systematic Financial Management, LP • TerraCap Management • TH Lee Partners • Victory Capital Management
HINGHAM ► Consultant: Meketa Investment Group	<ul style="list-style-type: none"> • PRIT 		
HOLYOKE ► Consultant: Segal Rogerscasey	<ul style="list-style-type: none"> • American Realty Advisors • Boston Company Asset Management, LLC • Brandywine Global Investment Management, LLC • Charles Schwab & Co., Inc. • Constitution Capital Partners, LLC • Denver Investments • Fidelity Institutional Asset Management • Flynn Financial Partners • Industry Capital Advisors, LLC 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • Invesco Core Real Estate USA, LP • Invesco Trust Company • Lazard Asset Management, LLC • Long Wharf Real Estate Partners, LLC • Mesirow Financial Private Equity Advisors, Inc. • Oberweis Asset Management, Inc. • OFI Global Institutional, Inc. • Polaris Capital Management, LLC 	<ul style="list-style-type: none"> • PRIT • Putnam Investment Management, LLC • RBC Global Asset Management (U.S.) Inc. • Seizert Capital Partners, LLC • State Street Global Advisors • TA Realty • TerraCap Management • Wasatch Advisors, Inc.
HULL	<ul style="list-style-type: none"> • PRIT 		
LAWRENCE	<ul style="list-style-type: none"> • PRIT 		
LEOMINSTER ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • Massachusetts Financial Services Company • PRIT 	<ul style="list-style-type: none"> • Templeton Investment Counsel 	<ul style="list-style-type: none"> • Union Labor Life Insurance Company
LEXINGTON ► Custodian: State Street Bank & Trust ► Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> • Acadian Asset Management, LLC • Beacon Capital Partners, LLC • Fidelity Investments • Fiduciary Management, Inc. • Golub Capital Partners 	<ul style="list-style-type: none"> • Hartford Investment Management Company • Loomis Sayles & Company • Matthews International Capital Management, LLC • Monroe Capital • PRIT 	<ul style="list-style-type: none"> • RhumbLine Advisers • Wellington Management Company, LLP • White Oak Global Advisors, LLC • William Blair & Company, LLC
LOWELL ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • Ascent Venture Partners • Boston Millennia Partners • Charles River Ventures 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • PRIT 	<ul style="list-style-type: none"> • QCI Asset Management • Sentinel Real Estate Corporation
LYNN	<ul style="list-style-type: none"> • Ascent Venture Partners • BlackRock Investment Management, LLC • BlackRock Realty Advisors, Inc. 	<ul style="list-style-type: none"> • Fidelity Investments Money Management, Inc. • Hunt Investment Management, LLC 	<ul style="list-style-type: none"> • Long Wharf Real Estate Partners, LLC • PRIT
MHFA ► Custodian: State Street Bank & Trust ► Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> • AEW Capital Management, LP • Ascent Venture Partners • Columbia Management Investment Advisers, LLC • Constitution Capital Partners, LLC • Dimensional Fund Advisors, LP 	<ul style="list-style-type: none"> • Goldman Sachs Asset Management, LP • HarbourVest Partners, LLC • Intercontinental Real Estate Corporation • Kleinwort Benson Investors International Ltd. • LMCg Investments, LLC 	<ul style="list-style-type: none"> • McDonnell Investment Management, LLC • RS Investment Management Company, LLC • State Street Global Advisors • Stone Harbor Investment Partners, LP • TA Realty
MWRA ► Custodian: State Street Bank & Trust ► Consultant: New England Pension Consultants	<ul style="list-style-type: none"> • Alcentra NY, LLC • Ascent Venture Partners • Boston Company Asset Management, LLC • Castile Ventures • Cerberus Capital Management, LP • Courtland Partners • Entrust Partners, LLC • Foundry Group, LLP • Intech • Intercontinental Real Estate Corporation • Invesco Trust Company 	<ul style="list-style-type: none"> • Invesco Private Capital, Inc. • Kayne Anderson Capital Advisors, LP • Landmark Partners, LLC • Lee Munder Capital Group, LLC • Loomis Sayles & Company • Mesirow Financial Institutional Real Estate • MFS Institutional Advisors, Inc. • Morgan Stanley • Pacific Investment Management Company, LLC • Permal Asset Management, Inc. • Pinebridge Investments, LLC 	<ul style="list-style-type: none"> • PRIT • RhumbLine Advisers • Robeco Institutional Asset Management U.S., Inc. • Schroder Investment Management North America, Inc. • SEI Trust Corporation • TA Realty • TerraCap Management • Wellington Management Company, LLP • William Blair & Company, LLC • WL Ross & Co., LLC

RETIREMENT BOARD	INVESTMENT VENDORS		
MALDEN ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> De Burlo Group, Inc. 		
MARBLEHEAD	<ul style="list-style-type: none"> PRIT 		
MARLBOROUGH ► Custodian: Comerica Bank ► Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> Clarion Partners Colony Realty Partners Dimensional Fund Advisors LP Driehaus Capital Management, LLC 	<ul style="list-style-type: none"> Fiduciary Management, Inc. Frontier Capital Management Co., LLC Payden & Rygel RhumbLine Advisers 	<ul style="list-style-type: none"> Shenkman Capital Management, Inc. SL Capital Partners, LLP State Street Global Advisors
MASSPORT ► Custodian: State Street Bank & Trust ► Consultant: Wilshire Associates	<ul style="list-style-type: none"> Aberdeen Asset Management, Inc. PRIT 	<ul style="list-style-type: none"> Pzena Investment Management, LLC State Street Global Advisors 	<ul style="list-style-type: none"> Wellington Management Company, LLP
MAYNARD ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> Boston Advisors, LLC 	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> Sequin Partners, LLC
MEDFORD ► Custodian: State Street Bank & Trust ► Consultant: New England Pension Consultants	<ul style="list-style-type: none"> Columbia Management Investment Advisors, LLC Lazard Asset Management, LLC Loomis Sayles & Company Mellon Capital Management Corporation 	<ul style="list-style-type: none"> Pacific Investment Management Company, LLC PRIT RhumbLine Advisers Standard Life Investment 	<ul style="list-style-type: none"> Wellington Management Company, LLP Western Asset Management Company William Blair & Company, LLC
MELROSE	<ul style="list-style-type: none"> Ascent Venture Partners Hunt Investment Management, LLC 	<ul style="list-style-type: none"> Intercontinental Real Estate Corporation Invesco Private Capital, Inc. 	<ul style="list-style-type: none"> PRIT TA Realty
METHUEN	<ul style="list-style-type: none"> BlackRock Investment Management, LLC 	<ul style="list-style-type: none"> PRIT 	<ul style="list-style-type: none"> Sentinel Real Estate Corporation
MIDDLESEX COUNTY ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> Ares Management, LLC Ascent Venture Partners Auda Private Equity, LLC Boston Millennia Partners 	<ul style="list-style-type: none"> Duke Street Capital Global Forest Partners, LP Globespan Capital Management, Inc. Hunt Investment Management, LLC 	<ul style="list-style-type: none"> Intercontinental Real Estate Corporation Invesco Private Capital, Inc. PRIT TH Lee Partners
MILFORD	<ul style="list-style-type: none"> PRIT 		
MILTON	<ul style="list-style-type: none"> PRIT 		
MINUTEMAN REGIONAL	<ul style="list-style-type: none"> PRIT 		
MONTAGUE	<ul style="list-style-type: none"> PRIT 		
NATICK ► Custodian: State Street Bank & Trust ► Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> Intercontinental Real Estate Corporation PRIT 	<ul style="list-style-type: none"> SEI Investments Management Corp. SEI Private Trust Company 	<ul style="list-style-type: none"> Sentinel Real Estate Corporation SL Capital Partners, LLP
NEEDHAM	<ul style="list-style-type: none"> PRIT 		
NEW BEDFORD ► Custodian: State Street Bank & Trust ► Consultant: Segal Rogerscasey	<ul style="list-style-type: none"> Aberdeen Asset Management, Inc. Acadian Asset Management, LLC Blackrock Realty Advisors, Inc. Boston Company Asset Management, LLC Hunt Investment Management, LLC Invesco Private Capital, Inc. 	<ul style="list-style-type: none"> Lexington Advisors, Inc. Loomis Sayles & Company Mesirow Private Equity Advisors, Inc. Pacific Investment Management Company, LLC SEI Trust Company State Street Global Advisors Limited 	<ul style="list-style-type: none"> TA Realty UBS Realty Investors, LLC Wellington Management Company, LLP Westfield Capital Management Company, LP Wilton Asset Management, LLC

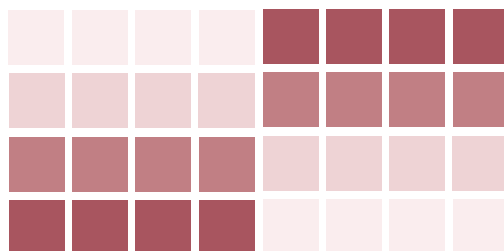
RETIREMENT BOARD		INVESTMENT VENDORS	
NEWBURYPORT	<ul style="list-style-type: none"> • PRIT 		
NEWTON	<ul style="list-style-type: none"> • PRIT 		
NORFOLK COUNTY ► Custodian: State Street Bank & Trust ► Consultant: Wainwright Investment Counsel, LLP	<ul style="list-style-type: none"> • AGF Investments America • Allianz Global Investors Fund Management, LLC • ArcLight Capital Partners, LLC • Ariel Investments • Ascend Ventures Group, LLC • Boston Millennia Partners • Centersquare Investment Management Holdings, Inc. • Centre Lane Partners, LLC • CHL Medical Partners • Clarion Partners • Collier Investment Management, Ltd. • Constitution Capital Partners, LLC • Corsair Capital LLC • D.E. Shaw Investment Management, LLC • Denver Investments • DSF Group • EnTrust Partners, LLC • Fisher Investments 	<ul style="list-style-type: none"> • Gamco Asset Management, Inc. • Gerding Edlen Investment Management, LLC • Globespan Capital Management, Inc. • Halpern, Denny & Company • Hamilton Lane • HarbourVest Partners, LLC • Hunt Investment Management, LLC • Income Research & Management • Intercontinental Real Estate Corporation • Invesco Private Capital, Inc. • Kleinwort Benson Investors International, Ltd. • Lazard Asset Management, LLC • Lee Munder Capital Group, LLC • Levine Leichtman Capital Partners, Inc. • LLM Capital Partners • Loomis, Sayles & Company • Mesirow Capital Partners X, LP • Mesirow Financial Institutional Real Estate 	<ul style="list-style-type: none"> • MFS International Advisors, Inc. • Monitor Venture Management • Northern Trust • Preferred Investors • PRIT • PRISM Venture Partners • Putnam Investment Management, LLC • RhumbLine Advisers • Seizert Capital Partners, LLC • Sentinel Real Estate Corporation • Siguler Guff Advisors, LLC • SL Capital Partners, LLP • State Street Global Advisors • TA Realty • TerraCap Management • Victory Capital Management • Wellesley Advisors Corporation • Wells Capital Management, Inc. • Wilshire Associates, Inc.
NORTH ADAMS ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • De Burlo Group, Inc. 	<ul style="list-style-type: none"> • PRIT 	
NORTH ATTLEBORO ► Custodian: State Street Bank & Trust ► Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> • AmSouth Bank • Atlanta Capital • Axiom International Investors, LLC • Blackrock Realty Advisors, Inc. • Brandes Investment Partners, LP 	<ul style="list-style-type: none"> • Herndon Capital Management, LLC • Intercontinental Real Estate Corporation • Lazard Asset Management, LLC • Loomis Sayles & Company 	<ul style="list-style-type: none"> • Navellier & Associates, Inc. • RhumbLine Advisers • Stewart Capital Advisors, LLC • Vontobel Asset Management, Inc.
NORTHAMPTON ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • De Burlo Group, Inc. 	<ul style="list-style-type: none"> • PRIT 	
NORTHBRIDGE	<ul style="list-style-type: none"> • PRIT 		
NORWOOD ► Custodian: State Street Bank & Trust ► Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> • Aberdeen Asset Management, Inc. • American Funds • Atlanta Capital • Boston Company Asset Management, LLC 	<ul style="list-style-type: none"> • Dimensional Fund Advisors, LP • Landmark Partners, LLC • Oaktree Capital Management, LP • PRIT 	<ul style="list-style-type: none"> • RhumbLine Advisers • Vontobel Asset Management, Inc. • Winslow Capital Management, LLC
PEABODY	<ul style="list-style-type: none"> • PRIT 		
PITTSFIELD ► Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Hunt Investment Management, LLC • PRIT 	<ul style="list-style-type: none"> • Sentinel Real Estate Corporation 	<ul style="list-style-type: none"> • SL Capital Partners, LLP
PLYMOUTH ► Custodian: State Street Bank & Trust ► Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Acadian Asset Management • Babson Capital Management • Blackrock Kelso Capital Advisors, LLC • Boston Advisors, LLC • Boston Trust Investment Management, Inc. 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • Invesco Advisors, Inc. • Invesco Trust Company • PRIT • Rhumbline Advisers 	<ul style="list-style-type: none"> • Robeco Institutional Asset Management U.S., Inc. • State Street Global Advisors • Templeton Investment Counsel • Wellington Management Company, LLP • Westfield Capital Management Company, LP

RETIREMENT BOARD	INVESTMENT VENDORS		
<p>PRIM</p> <p>► Custodian: BNY Mellon</p> <p>► Consultants: Arden Asset Management LLC, Callan Associates, Hamilton Lane, NEPC, Townsend</p>	<ul style="list-style-type: none"> • 1818 Fund • 400 Capital Management • Acadian Asset Management, LLC • Access Capital • Acon Investments • Advent International • AEW Capital Management • AFL-CIO Housing Investment Trust • Alchemy Partners • Alta Communications • American Securities Capital Partners • Anchorage Capital, LLC • Angelo Gordon • APAX Partners & Co. • Apollo Management Co. • AQR Capital • Arden Asset Management • Arrowgrass G.P. Limited • Ascent Venture Partners • Ashmore Investment Management, Ltd. • Asia Pacific Trust • Austin Ventures • Avenue Capital Group • Baillie Gifford • Bain Capital • Battery Ventures • Belmont Capital Partners • Berkshire Partners • Blackrock Financial Management, Inc. • Blackstone Capital Partners • Blackstone Group • Boston Ventures • Brevan Howard G.P. Limited • Bridgepoint Capital Limited • Brigade Capital G.P., LLC • Campbell Group, LLC • Candover • Cantab Capital Partners, LP • Canyon Johnson II • Capital Resource Lenders • Capula Management Limited • Carlyle Group • Carlyle Partners • Castille • Catalyst Investors • Centerbridge • Centerbridge Special Credit Partners • CenterSquare Investment Management • Charlesbank Capital Partners • Charles River Ventures • Charterhouse Group • Chequers • City of London Investment Management Co. • Claren Road Capital, LLC • Clifton Group • Code, Hennessey & Simmons • Commonwealth Capital Ventures • Community Capital Management • Crescent Capital Group • Crossroads Group • CSFB Private Equity (DLJ Merchant Banking Partners) • CVC Capital • Cypress Merchant Banking Partners • Davidson Kempner Advisors, Inc. • Denham Capital Management 	<ul style="list-style-type: none"> • DivcoWest • Driehaus Capital Management, LLC • Eaton Vance Institutional Funds • El Dorado Ventures • Elliot Capital Advisors, LP • Equitable Capital Management Corporation • Essex Woodlands Health Ventures • Ethos Private Equity • Exponent Private Equity Partners • Fidelity Management Trust Company • FIS Group, Inc. • First Reserve Corporation • Flagship Ventures • Forest Investment Associates • Frontier Capital Management • Freeman Spogli Equity Partners • GENSTAR Capital • Gilde Buy Out Partners AG • Glenview Capital G.P., LLC • Goldman Sachs Investment Management • Gores Capital • GSO Capital Partners • GTCR Golder Rauner • Harbourvest Partners • Harding Loevner • Hellman & Friedman Capital Partners • H.I.G. Capital Partners • Highfields Associates, LLC • Highland Capital Partners • Hony Capital • Huber Capital • Index Ventures • Insight Venture Partners • Intech • Intercontinental IV • InterWest Partners • Invesco Realty Advisors • Investec Asset Management • Jennison Associates • Joseph Littlejohn & Levy Fund • J.P. Morgan Investment Management • Kelso & Company • Kepha Partners • Keytone Ventures • King Street Capital Management • Kohlberg Kravis Roberts and Co. • KPS Capital Partners • Landmark Equity Partners • LaSalle Investment Management • Loomis, Sayles & Company • Madison Dearborn Capital Partners • Marathon — London • M/C Venture Partners • Menlo Ventures • MFA Partners APA German European Ventures • Mondrian Investment Partners Ltd. • Montagu • Montreux Equity Partners • Mudrick Capital Management, LP • Nash & Sells • Nautic Partners • New Boston Urban Fund I • New Enterprise Associates • Nordic Capital 	<ul style="list-style-type: none"> • Oaktree Capital Management • Odyssey Investment Partners • Olympus Partners • Onex Capital Partners • OZ Advisors, LP • Pacific Alternative Asset Management Co. (PAAMCO) • Pacific Investment Management Co. (PIMCO) • PAI Europe • PanAgora Asset Management, Inc. • Permira Ventures • Pershing Square G.P., LLC • Pictet Asset Management, Inc. • Polaris Venture Partners • Providence Equity Partners • Pzena Investment Management • Quad-C Management • Rembrandt Venture Partners • Riverbridge Partners • Rock Creek Group • Russell Implementation Source • SAIF Partners • Samlyn Partners, LLC • SCP Vitalife • Shenkman Capital Management • Sherbrooke Capital • Sofinnova Ventures, Inc. • Spark Capital • Spectrum Equity Partners • State Street Global Advisors • Steadfast Capital Management LP • Stone Harbor Investment Partners LP • Summit Creek Advisors • Summit Ventures • SV Life Sciences Advisors • TA Associates/Advent • TA Realty • Taconic Associates, LLC • Technology Crossover Ventures • Texas Pacific Group • Thoma Bravo • Thoma Cressey Partners • Thomas H. Lee Equity Partners, LP • Torquest Partners • Towerbrook Capital Partners • Trident Capital • Trust Company of the West • T. Rowe Price • Union Square Ventures • VantagePoint Partners • Venture Capital Fund of New England • Vestar Capital Partners • Vista Equity Partners • Voya Financial • Wasatch Advisors Inc. • Wayzata Investment Partners • Welsh, Carson, Anderson & Stowe • Weston Presidio Capital • WestView Capital Partners • Whitney & Company • William Blair Mezzanine Capital Fund, LP • Willis Stein • Winton Capital Management • Xenon Private Equity, LTD • York Capital Management

RETIREMENT BOARD	INVESTMENT VENDORS		
PLYMOUTH COUNTY ▶ Custodian: State Street Bank & Trust ▶ Consultant: Wainwright Investment Counsel, LLC; Meketa Investment Group	<ul style="list-style-type: none"> • ABS Investment Management, LLC • Aetos Capital, LLC • Akina Limited • Ascend Venture Group • Ascent Venture Partners • Berkshire Property Advisors, LLC • Boston Company Asset Management, LLC • BTG Pactual Timberland Investment Group • Charles River Ventures • Denver Investments • DN Partners • DSF Group • Eaton Vance Investment Counsel • Fisher Investments 	<ul style="list-style-type: none"> • Franklin Templeton Investment Management • Geneva Capital Management, Ltd • Globespan Capital Management, Inc. • HGK Asset Management, Inc. • Hunt Investment Management, LLC • Income Research & Management • Intercontinental Real Estate Corporation • Invesco Trust Company • J.P. Morgan Investment Management, Inc. • Kleinwort Benson Investors International, Ltd. • Landmark Partners, LLC • Lee Munder Capital Group, LLC • Leeds Equity Partners • Levine Leichtman Capital Partners, Inc. 	<ul style="list-style-type: none"> • Lexington Partners, LP • McDonnell Investment Management, LLC • Mesirow Financial Capital Partners X, LP • Mesirow Financial Institutional Real Estate • New Boston Fund, Inc. • Prudential Real Estate Investors • RhumbLine Advisers • Rohatyn Group • SEI Trust Company • Siguler Guff Advisers, LLC • THL Credit Advisors, LLC • TimberVest, LLC • Wellesley Advisors Corporation
QUINCY ▶ Custodian: State Street Bank & Trust ▶ Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> • Aberdeen Asset Management, Inc. • Acadian Asset Management, LLC • Adams Street Partners, LLC • AEW Capital Management, LP • Beach Point Capital Management, LP • Brookfield Asset Management • Colony Realty Partners • Copper Rock Capital Partners, LLC 	<ul style="list-style-type: none"> • Earnest Partners, LLC • Goldman Sachs Asset Management, LP • Hancock Timber Resource Group, Inc. • Harbor Funds • Loomis Sayles & Company • Nichols Asset Management, LLC • Oppenheimer Alternative Investment Management 	<ul style="list-style-type: none"> • PRIT • RhumbLine Advisers • Ridgemont Equity Partners • SL Capital Partners, LLP • State Street Global Advisors • Stone Harbor Investment Partners, LP • TA Realty • UBS Realty Investors, LLC
READING	<ul style="list-style-type: none"> • PRIT 		
REVERE	<ul style="list-style-type: none"> • PRIT 		
SALEM ▶ Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • Ascent Venture Partners 	<ul style="list-style-type: none"> • Long Wharf Real Estate Partners, LLC 	<ul style="list-style-type: none"> • PRIT
SAUGUS	<ul style="list-style-type: none"> • PRIT 		
SHREWSBURY ▶ Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> • PRIT 		
SOMERVILLE ▶ Custodian: Comerica Securities	<ul style="list-style-type: none"> • Congress Asset Management Company, LLP • Lazard Asset Management, LLC 	<ul style="list-style-type: none"> • Loomis Sayles & Company • RhumbLine Advisers 	<ul style="list-style-type: none"> • UBS Realty Investors, LLC
SOUTHBRIDGE	<ul style="list-style-type: none"> • PRIT 		
SPRINGFIELD ▶ Custodian: PeoplesBank	<ul style="list-style-type: none"> • Boston Millennia Partners 	<ul style="list-style-type: none"> • Crescendo Ventures Management, LLC 	<ul style="list-style-type: none"> • PRIT
STATE	<ul style="list-style-type: none"> • PRIT 		
STATE TEACHERS	<ul style="list-style-type: none"> • PRIT 		
STONEHAM ▶ Custodian: SEI Private Trust Company ▶ Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • PRIT 	<ul style="list-style-type: none"> • SEI Investments Management Corp. 	
SWAMPSCOTT ▶ Custodian: State Street Bank & Trust ▶ Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Fred Alger Management, Inc. • Intercontinental Real Estate Corporation 	<ul style="list-style-type: none"> • North Sky Capital, LLC • PRIT 	<ul style="list-style-type: none"> • Trust and Fiduciary Management Services, Inc.

RETIREMENT BOARD	INVESTMENT VENDORS		
TAUNTON ▶ Custodian: State Street Bank & Trust ▶ Consultant: Dahab Associates, Inc.	<ul style="list-style-type: none"> • BlackRock Investment Management, LLC • Boston Millennia Partners • Brandywine Global Investment Management, LLC • Ceres Partners, LLC • C.S. McKee, LP • Daruma Capital Management, LLC • Denver Investments • Earnest Partners, LLC 	<ul style="list-style-type: none"> • Glovista Investments, LLC • Herndon Capital Management, LLC • Intercontinental Real Estate Corporation • Invesco Core Real Estate USA, LP • Invesco Trust Company • Invesco Private Capital, Inc. • Long Wharf Real Estate Partners, LLC • Manulife Asset Management, LLC 	<ul style="list-style-type: none"> • Molpus Woodlands Group, LLC • Polen Capital Management, LLC • State Street Global Advisors • Systematic Financial Management, LP • TimberVest, LLC • Victory Capital Management • Vontobel Asset Management, Inc. • Weaver C. Barksdale & Associates
WAKEFIELD	<ul style="list-style-type: none"> • PRIT 		
WALTHAM ▶ Custodian: State Street Bank & Trust ▶ Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Ascent Venture Partners • Hunt Investment Management, LLC • Intercontinental Real Estate Corporation 	<ul style="list-style-type: none"> • Invesco Private Capital, Inc. • Precision Capital Advisors, LLC 	<ul style="list-style-type: none"> • PRIT • RCP Advisors, LLC
WATERTOWN ▶ Custodian: State Street Bank & Trust ▶ Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Acadian Asset Management, LLC • Arsenal Real Estate Funds, LLC • Auda Private Equity, LLC • Blackrock Advisors, LLC • Brandywine Global Investment Management, LLC • Columbia Management Investment Advisors, LLC 	<ul style="list-style-type: none"> • Earnest Partners, LLC • Guggenheim Partners Investment Management, LLC • Income Research & Management • Intercontinental Real Estate Corporation • Lee Munder Capital Group, LLC 	<ul style="list-style-type: none"> • Massachusetts Financial Services Company • New Boston Fund, Inc. • PRIT • RCP Advisors, LLC • SEI Trust Company • Wellington Management Company, LLP
WEBSTER ▶ Custodian: State Street Bank & Trust ▶ Consultant: Wainwright Investment Counsel, LLC	<ul style="list-style-type: none"> • HGK Asset Management Inc. • Lee Munder Capital Group, LLC 	<ul style="list-style-type: none"> • Loomis Sayles & Company • PRIT 	<ul style="list-style-type: none"> • RhumbLine Advisers • SEI Trust Company
WELLESLEY	<ul style="list-style-type: none"> • PRIT 		
WEST SPRINGFIELD ▶ Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • AmSouth Bank 	<ul style="list-style-type: none"> • De Burlo Group, Inc. 	
WESTFIELD	<ul style="list-style-type: none"> • Boston Company Asset Management, LLC • Columbia Management Investment Advisers, LLC • Constitution Capital Partners, LLC • Fisher Investments • Hamilton Lane • Income Research & Management 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • Iridian Asset Management, LLC • Lazard Asset Management, LLC • Long Wharf Real Estate Partners, LLC • Loomis Sayles & Company • Polaris Capital Management, LLC 	<ul style="list-style-type: none"> • PRIT • RBC Global Asset Management (U.S.), Inc. • State Street Global Advisors • TerraCap Management • Wasatch Advisors, Inc. • Wells Capital Management, Inc.

RETIREMENT BOARD	INVESTMENT VENDORS		
WEYMOUTH ► Custodian: State Street Bank & Trust ► Consultant: Fiduciary Investment Advisors, LLC	<ul style="list-style-type: none"> • Aberdeen Asset Management, Inc. • Acadian Asset Management, LLC • BlackRock Advisors, LLC • Boston Company Asset Management, LLC • Brandywine Global Investment Management, LLC • Constitution Capital Partners, LLC • HarbourVest Partners, LLC 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • Invesco Private Capital, Inc. • Landmark Partners, LLC • Loomis Sayles & Company • OFI Global Institutional, Inc. • Pioneer Institutional Asset Management Inc. • PRIT 	<ul style="list-style-type: none"> • RhumbLine Advisers • RS Investment Management Company, LLC • Singular Guff Advisers, LLC • State Street Global Advisors • Westfield Capital Management Company, LP • William Blair & Company, LLC
WINCHESTER ► Custodian: State Street Bank & Trust	<ul style="list-style-type: none"> • Guggenheim Real Estate, LLC • PRIT 	<ul style="list-style-type: none"> • State Street Global Advisors 	<ul style="list-style-type: none"> • Wellington Management Company, LLP
WINTHROP	<ul style="list-style-type: none"> • PRIT 		
WOBURN ► Custodian: State Street Bank & Trust ► Consultant: Wainwright Investment Counsel, LLC	<ul style="list-style-type: none"> • Alliance Bernstein, LP • Charlesbank Capital Partners, LLC • Earnest Partners, LLC • Hunt Investment Management, LLC • Intercontinental Real Estate Corporation 	<ul style="list-style-type: none"> • Invesco Private Capital, Inc. • Loomis Sayles & Company • PRIT • RhumbLine Advisers 	<ul style="list-style-type: none"> • RS Investment Management Company, LLC • Stafford Private Equity Inc. • State Street Global Advisors • Wilshire Associates, Inc.
WORCESTER ► Custodian: State Street Bank & Trust ► Consultant: Meketa Investment Group, Inc.	<ul style="list-style-type: none"> • Acadian Asset Management, LLC • AEW Capital Management, LP • American Securities, LLC • Ares Management, LLC • Ascent Venture Partners • Boston Millenia Partners • BTG Pactual Timberland Investment Group, LLC • Capital International, Inc. • Charlesbank Capital Partners, LLC • Dimensional Fund Advisors, LP • Hancock Natural Resource Group, Inc. • Harvest Partners, LP 	<ul style="list-style-type: none"> • Heitman Capital Management, LLC • Income Research + Management • Intercontinental Real Estate Corporation • Invesco Core Real Estate USA, LP • Invesco Private Capital, Inc. • Lazard Asset Management, LLC • Lee Munder Capital Group, LLC • Loomis Sayles & Company • Newstone Capital Partners, LLC • Nichols Asset Management LLC • Northstar Company, LLC 	<ul style="list-style-type: none"> • Pacific Investment Management Company, LLC • Penn Capital Management Company, Inc. • PRIT • Ridgmont Equity Partners • Riverside Company • SL Capital Partners, LLP • State Street Global Advisors • Vitruvian Partners, LLP • White Deer Energy • William Blair & Company, LLC
WORCESTER REGIONAL	<ul style="list-style-type: none"> • AEW Capital Management, LP • Ascent Venture Partners • Hunt Investment Management, LLC 	<ul style="list-style-type: none"> • Intercontinental Real Estate Corporation • PRIT 	<ul style="list-style-type: none"> • SL Capital Partners, LLP • TA Realty



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